

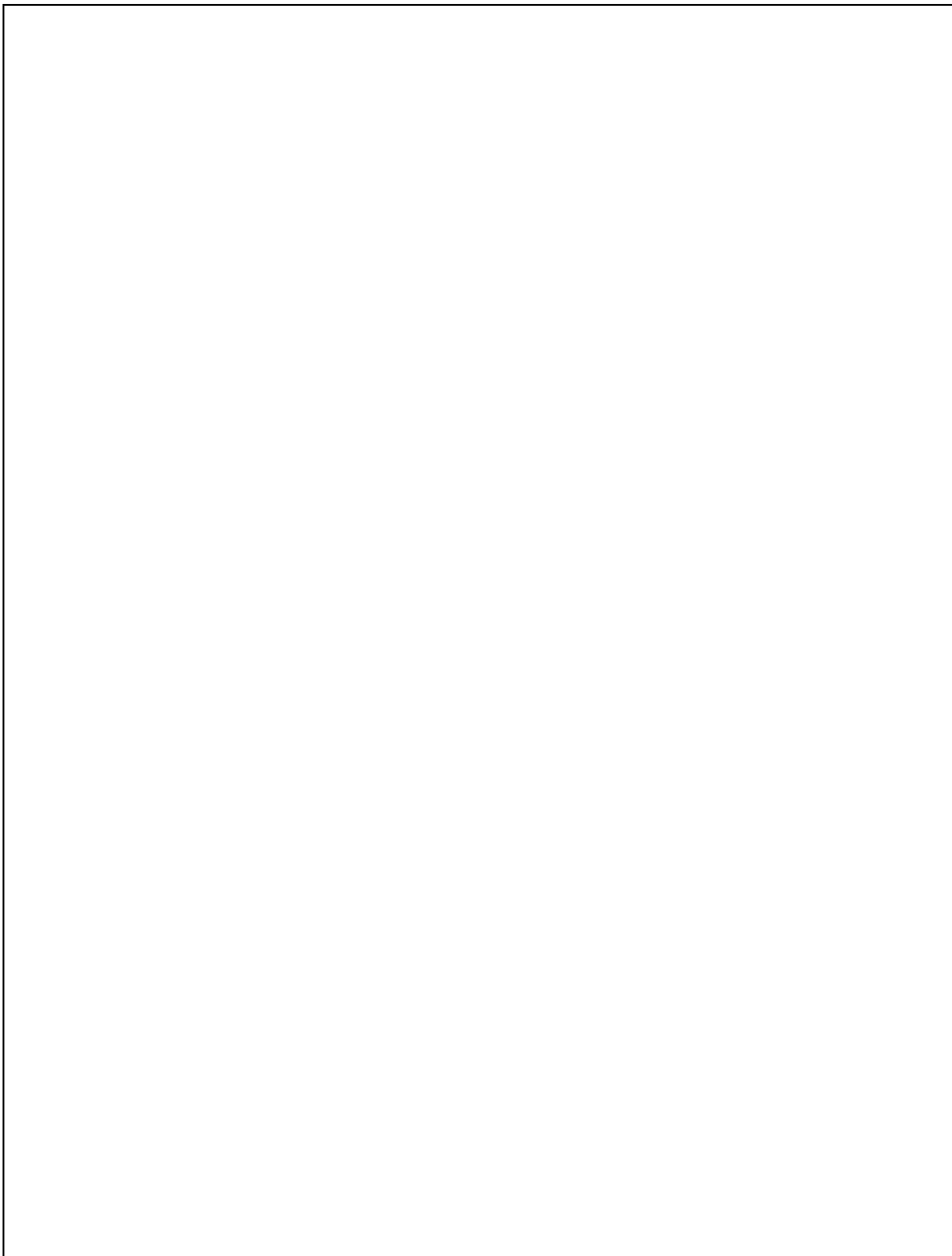


Power System

220V / 230V / 240V 50/60 Hz
4 to 16 kVA

User Manual
English





IMPORTANT SAFETY INSTRUCTIONS

SAVE THESE INSTRUCTIONS.

This manual contains important instructions that should be closely followed during installation and maintenance of this UPS unit and during the installation and replacement of power, control and battery modules.

This product is designed for Commercial / Industrial use only. This product is not intended for use with life support and other designated "critical" devices. Maximum load must not exceed that shown on the UPS rating label. See Limited Warranty.

WARNING: Lethal voltages may be present within this unit even when it is apparently not operating. Observe all cautions and warnings in this manual. Failure to do so MAY result in serious injury or death. Never work alone.

Observe the following precautions when working with batteries:

- **CAUTION:** DO NOT dispose of battery modules in a fire; the battery module may explode.
- **CAUTION:** DO NOT open or mutilate batteries; released electrolyte is harmful to skin and eyes, and may be toxic.
- **CAUTION:** A battery can present a risk of electrical shock and high short circuit current. The following precautions should be observed when working on batteries:
 - Remove watches, rings or other metal objects.
 - Use tools with insulated handles.
- **CAUTION:** Lead-acid batteries contain hazardous toxic materials. Handle, transport, and recycle in accordance with local regulations.

This UPS is designed for use on properly grounded 220/230/240 VAC 50/60Hz supply, for installation by qualified personnel. This UPS is intended to be installed by a qualified / certified electrician who must review and approve customer supplied wiring, circuit breakers, intended loads and verify correct input, output and earth connections to ensure compliance with technical standards and local electrical codes of practice. Installation instructions and warning notices only for use by qualified personnel are located in the Installation section of this manual.

ELECTROMAGNETIC COMPATIBILITY – This UPS complies with the requirements of the EMC directive 89/336/EEC and the published technical standards. Continued compliance requires installation in accordance with these instructions and use of manufacturer approved accessories only.

Operate the UPS in an indoor environment only in an ambient temperature range of 0°C to +40°C (32°F to +104°F). Install it in a clean environment, free from conductive contaminants, moisture, flammable liquids, gasses, or corrosive substances.

Turn the UPS off and isolate the UPS before cleaning. Use only a soft cloth, never liquid or aerosol cleaners. Keep the front and rear vents free of dust accumulation that could restrict airflow.

Never block or insert any object into the ventilation holes or other openings.

This UPS contains user replaceable modules. No attempts should be made to access the interior of any module. See troubleshooting section on module replacement.

WARNING: This UPS should not be supplied from electrical power systems of the "IT" (Impedance à Terre) type. (IEC 364 – ELECTRICAL INSTALLATION OF BUILDINGS).

Glossary of Symbols



Risk of Electrical Shock



Indicates Caution
Followed by Important Instructions



AC Input



AC Output



Requests the user to consult the manual



Indicates the unit contains a valve-regulated lead acid battery



Recycle



DC Voltage



Equipment Grounding Conductor



Bonded to ground



AC Voltage



OFF



ON



Standby



No Telecommunication Connection



Locked Position



Unlocked Position



Contact Closure Signals

Introduction

General Description
Modes of Operation
Major Components

General Description

Congratulations on your purchase of Liebert's *Nfinity*™ Uninterruptible Power System. As with every Liebert product, we stand behind our quality. If you have any questions concerning this UPS, please feel free to contact your local sales representative, or call the appropriate Technical Support number listed in the back of this manual.

To ensure proper installation and operation of this unit, please read this manual thoroughly.

While installation must be completed by a qualified / certified electrician, general operation may be performed without special training.

SYSTEM DESCRIPTION

The Liebert *Nfinity* Power System is a modular UPS intended for use with workstations, servers, network, telecom or other sensitive electronic equipment. It provides continuous, high-quality AC power to your equipment, protecting it from any power disturbances due to blackouts, brownouts, surges or noise interference.

The *Nfinity* modular UPS was designed to provide maximum system availability to business critical equipment. *Nfinity* is an easily adaptable UPS system. By simply installing additional power or battery modules you can expand your current system capacity or extend your back-up runtime.

Nfinity has a comprehensive user interface that can be configured according to the user's preference. It also informs the user of details on the status of the UPS, and keeps a log of events.

FEATURES:

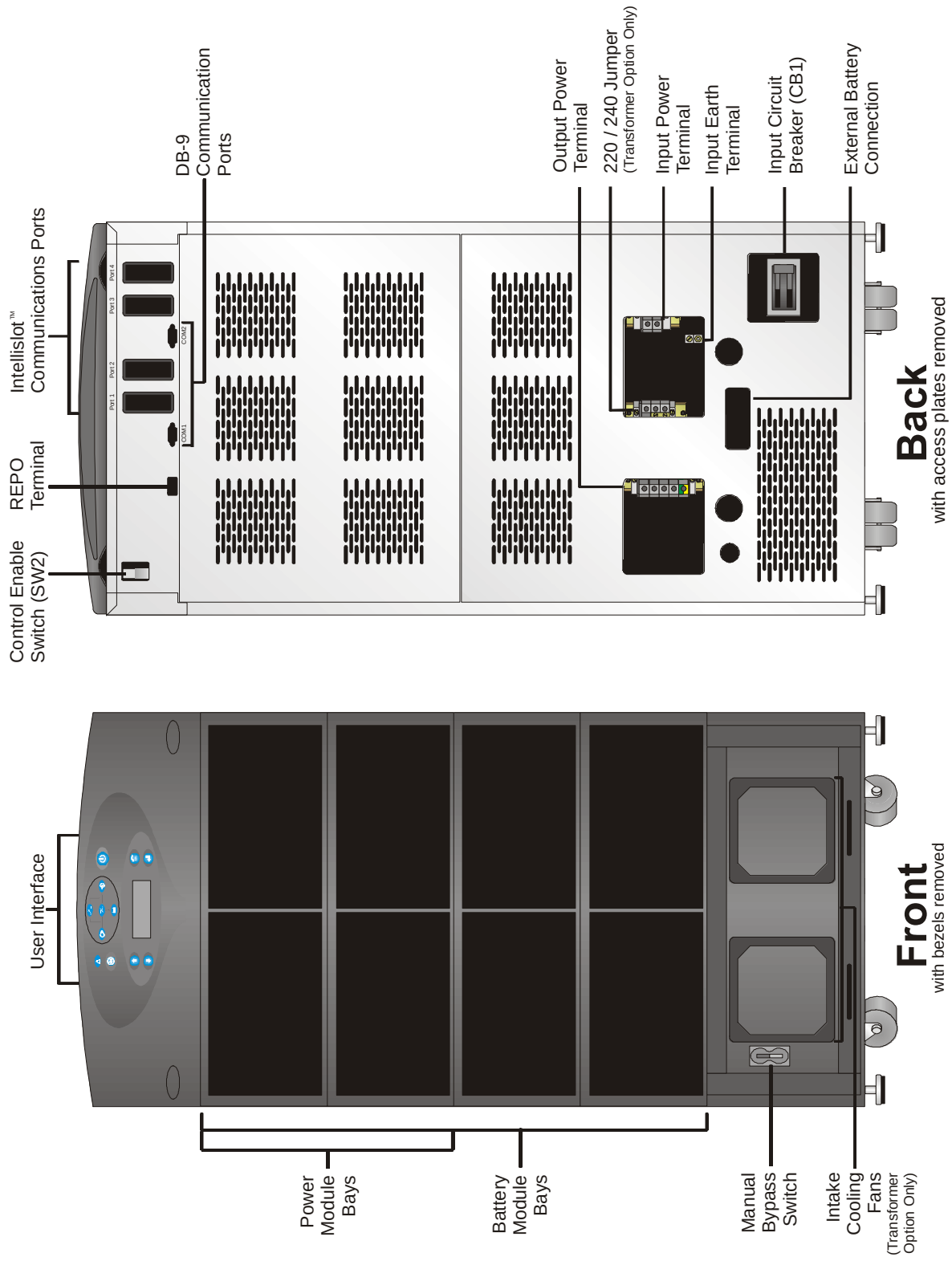
- Up to 16 kVA of modular back-up power
- Continuous power conditioning
- A user-friendly interface for custom configuration
- Continuous system monitoring
- Warning alarms and event logs
- Internal automatic & manual bypass
- Output transformer for isolation (optional)

STANDARD COMPONENTS:

- Power Modules – for power conditioning
- Battery Modules – for back-up power
- System Control Modules – for system monitoring and communications
- LCD display for comprehensive user indications and programmable controls

COMMUNICATIONS

- Dry contacts
- RS-232
- Optional communications via Intellislot™ communication ports



Modes of Operation

The *Nfinity* UPS is designed to operate as a true on-line system in the following modes:

Normal Mode

The Power Module's power factor correction circuitry derives power from the mains AC source and supplies regulated DC power to the inverter. The module's inverter regenerates precise AC power to supply the connected equipment. The battery charger maintains a float-charge on the battery.

Back-Up Mode

When AC mains fails, the connected equipment is supplied power by the inverter, which obtains energy from the battery modules. The connected load will not be interrupted during the failure or restoration of the AC mains source.

Auto Restart Mode

After a power outage and complete battery discharge, once the AC mains is restored, the UPS will automatically restart and resume supplying power to the connected equipment. This feature is enabled at the factory, but can be disabled by the user. The user can also program two auto restart delay settings:

1. Battery capacity level (%)
2. Countdown timer

Recharge Mode

When AC mains is restored, the unit will then automatically recharge the battery modules until they are fully charged.

Bypass Mode

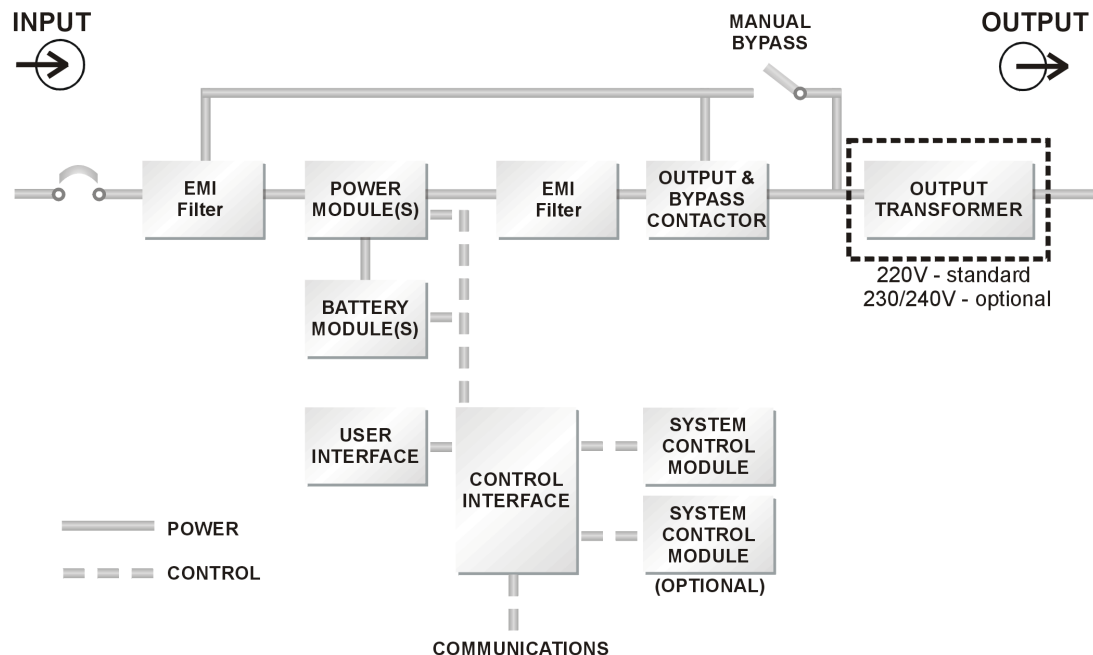
The bypass provides an alternate path for power to the connected equipment and operates in the following manner:

Automatic

In the event of an internal fault or should the inverter overload capacity be exceeded, the UPS performs an automatic transfer of the connected equipment from the inverter to the bypass source.

Manual

Should the UPS need to be taken out of service for limited maintenance or repair, manual activation of the bypass will cause an immediate transfer of the equipment from the inverter to the bypass source.



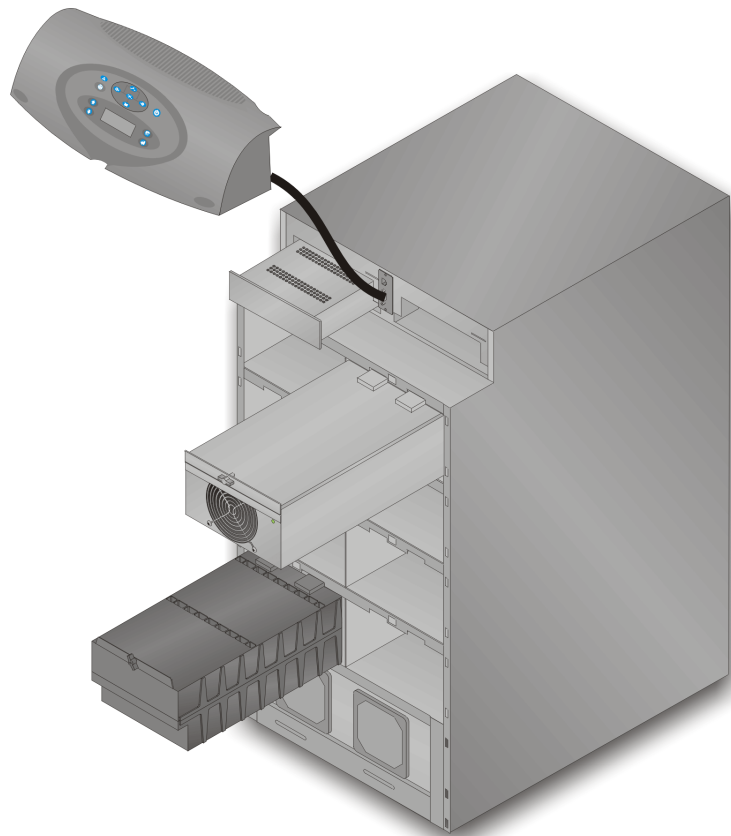
Major Components

The following is a general description of each component and its functions. Please review this section carefully, as it will give you a better understanding as to how *Nfinity* operates.

Unit Frame

Nfinity's frame houses all of the other system components. Looking at the front of *Nfinity*, one will see a series of plastic bezels. By grasping these bezels from the side and pulling out, you will remove the bezel to reveal the Battery / Power Module bays. The bottom bezel covers the cooling fans and the Manual Bypass Switch.

The User Interface Module is located above the Power / Battery Module bays for easy access. From here the user may find out various information about *Nfinity*'s condition. By moving the User Interface and setting it on top of the frame, you will see the System Control Module bays.



Nfinity's frame with bezels removed

User Interface Module

The User Interface Module is the primary source of communication between the UPS and the user.

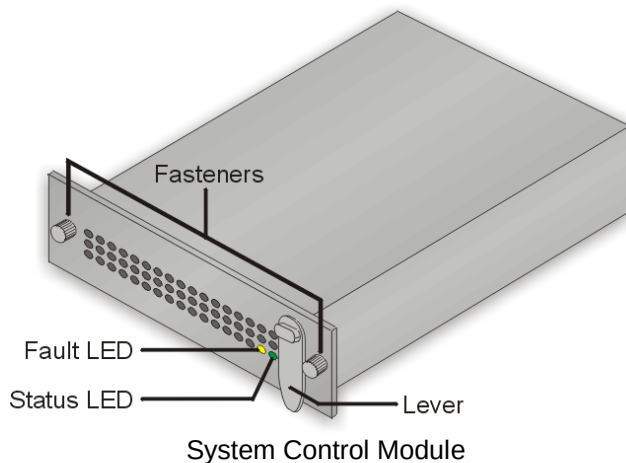
From the interface, the user can:

- View the status of the UPS
- Custom configure the system
- Review the event log to assist with troubleshooting
- Enable / disable the output power
- Silence the audible alarm

For a more detailed explanation on how to operate the User Interface module, see the Controls and Indicators section of this manual.



User Interface Module



System Control Module

The System Control Module is the communicative backbone of the UPS. It gathers input from all modules and processes the data to control the operation of the system – including monitoring the condition of each module. An optional second System Control Module can be installed to provide full system redundancy (operation and communication), in the unlikely event a Control Module should fail.

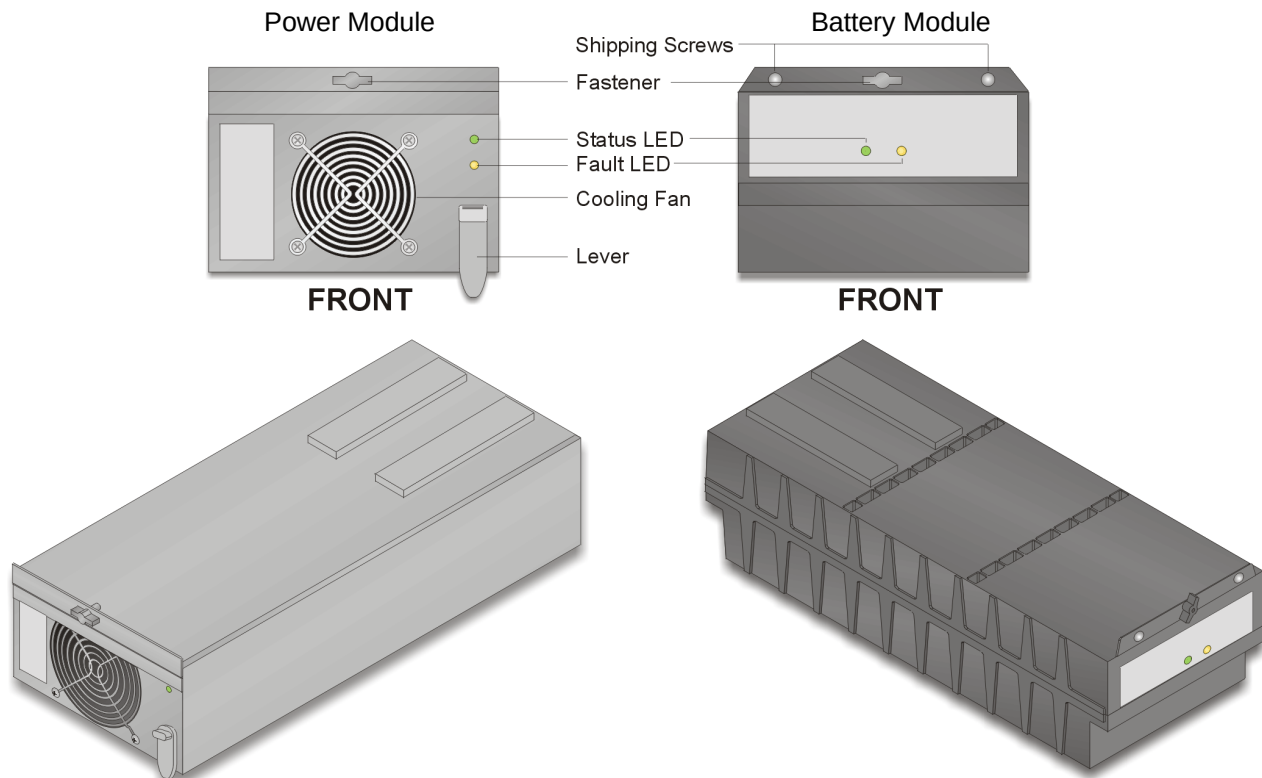
Under normal operation, the Status LED (green) will blink and the Fault LED (amber) will be off. For any condition other than this, check the Troubleshooting section of this manual.

Power Module

The Power Module maintains the condition of power in the *Nfinity* UPS. Each module is an independent 4 kVA unit, consisting of a power factor corrected rectifier, battery charger, and inverter, with associated monitoring and control-circuitry. The modules are paralleled to provide greater capacity and/or redundancy. Modules may be added or replaced on-line with no interruption or danger to the connected equipment.

Battery Module

The Battery Modules provide back-up power in the event of input mains failure. Each module contains a quantity of ten individual 12-volt valve regulated (VRLA) battery blocks with associated monitoring and controls to isolate the battery module in the event of a battery failure. The modules are paralleled to provide greater back-up time and/or redundancy. Modules may be added or replaced on-line with no interruption or danger to the connected equipment.



Under Normal Operation, the Status LED (green) will blink and the Fault LED (amber) will be off. For any condition other than this, check the Troubleshooting section of this manual.

Installation

Preparation

Unloading

Cable Installation

Communications

Preparation

These installation instructions provide all the information needed for positioning the UPS (including environmental requirements) and for connecting the input and output power cables.

Inspection

Upon receiving the UPS, examine the packaging for any signs of mishandling or damage. If any damage is noted, call your local Liebert representative and/or notify your carrier.

Environment

Operating in temperatures above 25° C (77° F) will reduce battery life. The UPS environment must be free of conductive contaminants and excessive moisture (water condensation, flammable vapors, chemical fumes, or corrosive gasses and liquids).

Required Setup Equipment

The tools below are required in order to properly setup your UPS:

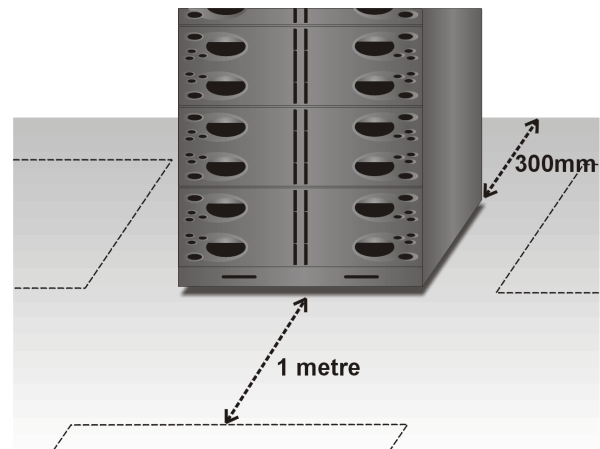
- Pallet jack
- 13 mm Spanner
- Torque Wrench (Nm)
- Flathead Screwdriver
- #2 Phillips Screwdriver

Site Preparation

When deciding where to locate your UPS, consider the weight and size of the unit. Make sure that the structural integrity of the floor can withstand the weight of a fully loaded unit. Refer to the table below for size and fully populated weight considerations:

Model	Max Weight kg	H x W x D mm
8 bay	396	1016 x 508 x 711
12 bay	539	1346 x 508 x 711

Check to make sure that your UPS will be located in a well-ventilated area with at least 300 mm behind it. The UPS is force cooled with the aid of internal cooling fans. Cooling air enters from the front of the UPS and is exhausted through ventilation grills in the back. It should also have at least 1 metre in front, in order to change modules if necessary.



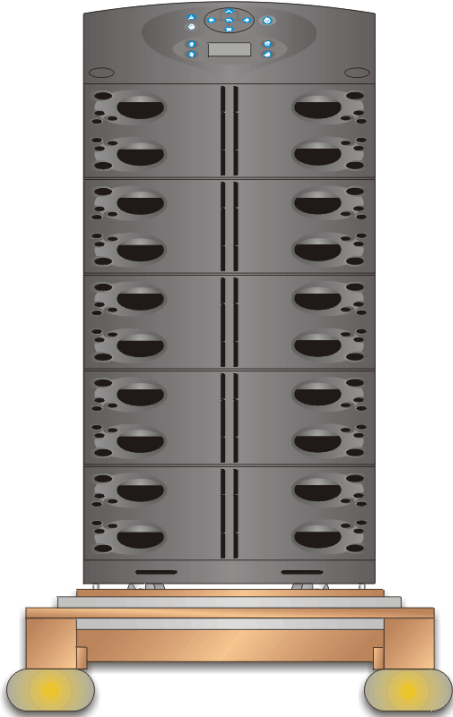
The unit frame is bolted to the shipping pallet to ensure safety. It is recommended that a pallet jack be used to transport the unit to its operating location (prior to unbolting the unit).

Unloading

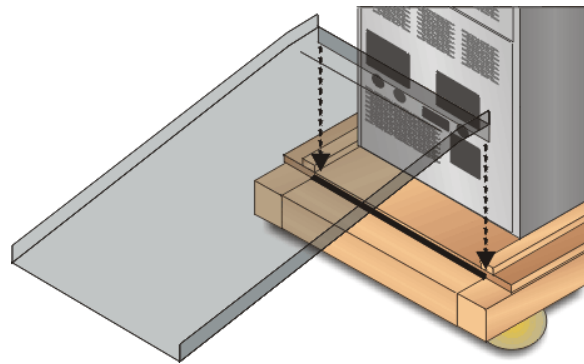
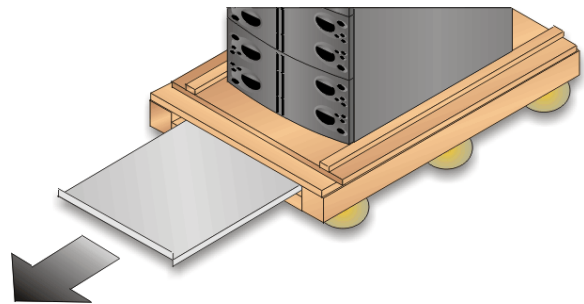
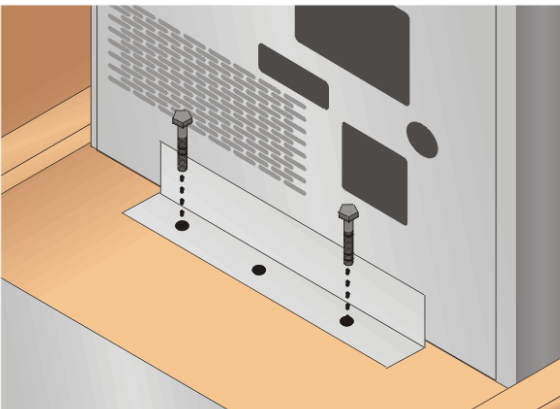
Unloading the UPS

CAUTION: This UPS is very heavy (see weight on previous page). At least two people should be present to unload it off of the pallet.

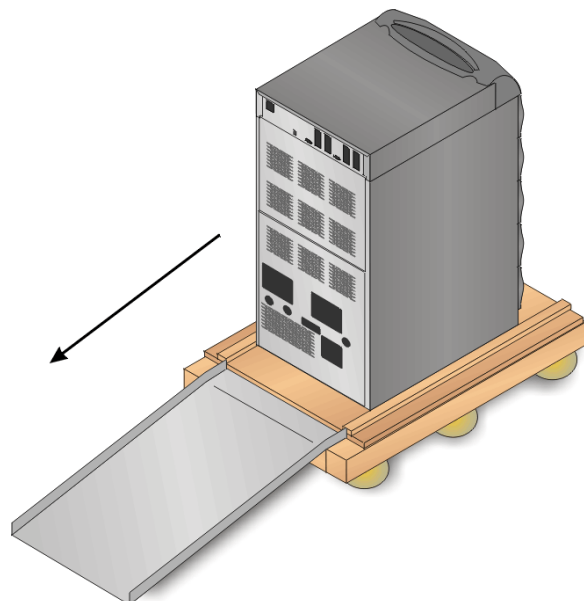
1. Once the UPS is near the desired operating location, remove the cardboard cover.



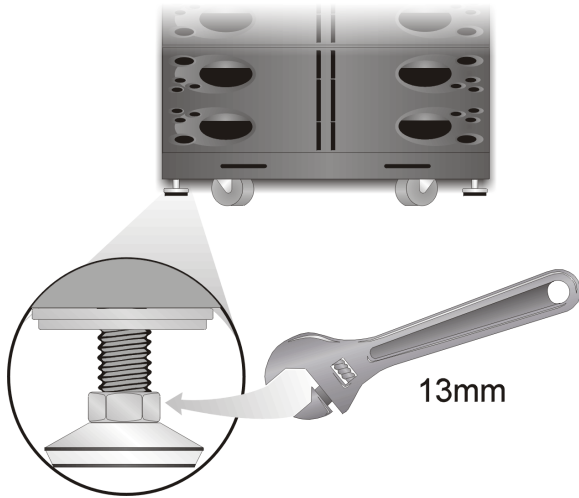
2. Use a 13 mm spanner to remove the four mounting bolts from the pallet brackets. Remove mounting brackets from the pallet and UPS. Keep brackets for future transportation of UPS, or for additional stability once in place.



3. Remove the metal ramp from the bottom of the UPS, rotating it. Fit ramp in pallet slot as shown above.
4. Using two people, slowly move the UPS down the ramp until the UPS is on level ground.

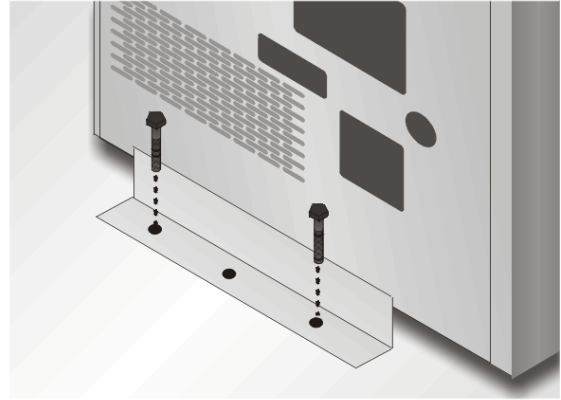


5. Once the UPS is in its desired location, adjust the leveling feet to secure its position.



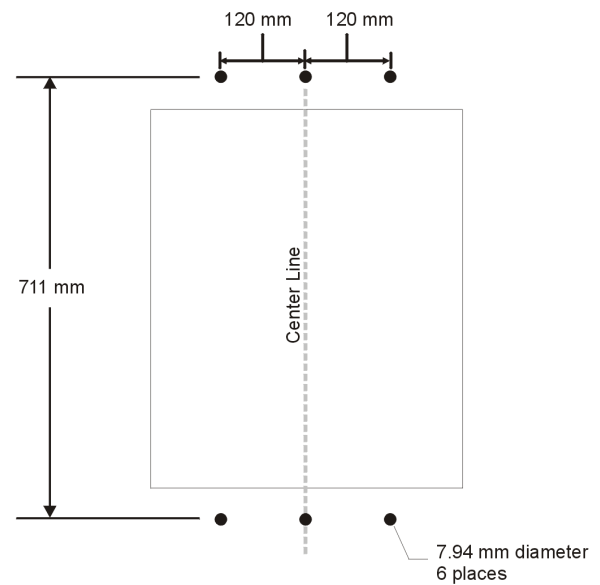
Stationary Mounting

Additional stability can be added by bolting the mounting brackets (used in shipping) to the floor.



For greater stability, use a higher-grade bolt. Refer to the dimensions below when drilling holes for stationary mounting.

Optional Stationary Mounting



Cable Installation

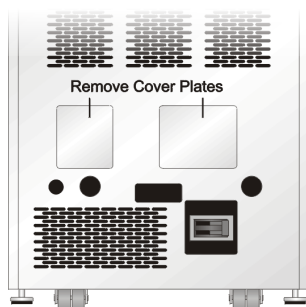
Wiring Preparation

WARNING: Please read this section thoroughly before attempting to install wiring to this unit.

Be sure that the unit is not connected to any AC mains power source before installing any wiring to this unit. This UPS should be installed by a qualified / certified electrician.

Removing the Cover Plates

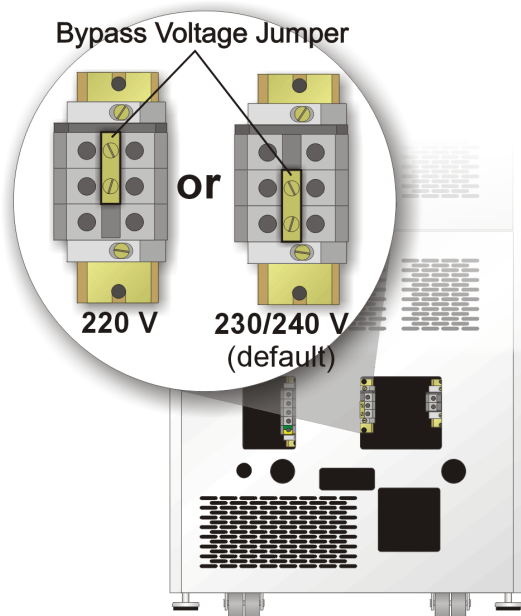
On the back of the UPS, cover plates are over the input and output terminals, as shown on right. Remove these using a Phillips screwdriver. Keep screws and plates to one side.



Configuring the Bypass Voltage (TB2)

(Transformer Models Only)

The UPS voltage is factory set to 230V / 240V. Should the user have a utility supply of 220 V, the bypass voltage jumper will have to be changed to ensure correct output voltage during bypass mode.



Power Cable Installation

Refer to the charts below when selecting cables:

8 Bay Power Cable and Protection Ratings			
	220V	230V	240V
Max Input Current	60 A	60 A	60 A
Input Protection	63 A	63 A	63 A

Max Output Current	39 A	37 A	35 A
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12 Bay Power Cable and Protection Ratings			
	220V	230V	240V
Max Input Current	84 A	84 A	84 A
Input Protection	100 A	100 A	100 A

Max Output Current	51 A	49 A	47 A
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Terminal Details	Max: 35 mm ² Min: 16 mm ² Torque Rating: 2.5-3 Nm
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90°C rated copper wire is recommended

Notes:

If an output transformer is fitted and the start-up is on bypass the UPS has a 3-cycle inrush current that is 6 times the rated output current. This must be taken into account when selecting the overload protection device at the AC input supply distribution point. To avoid random tripping on start up, it is recommended that the AC input supply be protected with a circuit breaker capable of withstanding this initial inrush. (An MCB rated to curve 'D' or specified as being 'Type 4' (British standard) is suitable for this purpose).

This UPS is fitted with EMI suppression filters. Earth leakage current is less than 40mA. Transient and steady state earth leakage currents may occur when starting the equipment. This should be taken into account when selecting instantaneous RCCB or RCCD devices, as the earth leakage currents of both the UPS and load will be carried by these.

An overcurrent protection device (circuit breaker or fused disconnect switch) must be installed for the AC output.

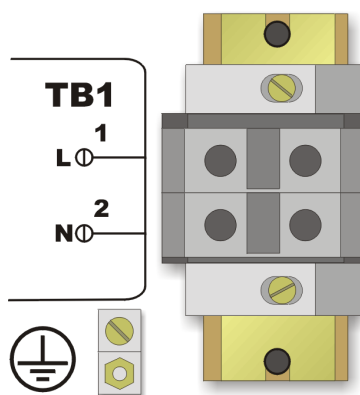
This UPS does not incorporate automatic back feed protection. A warning label must be fitted to all primary power isolators stating: ISOLATE UNINTERRUPTIBLE POWER SYSTEM (UPS) BEFORE WORKING ON THIS CIRCUIT. Earth in accordance with local electrical codes

Input Wiring (TB1)

To connect the input wiring, follow these steps:

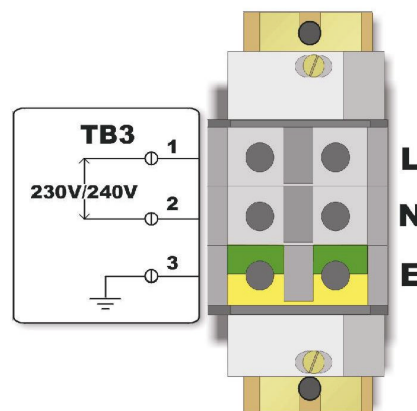
Note: Input wiring must be installed using conduit.

1. Locate the input wiring access, remove the knockout and pull the three input wires through it, allowing some slack for installation.
2. Secure the conduit to the rear panel of the UPS.
3. Input Power cables connect to screw terminals on the Input Terminal Block located to the right of the Bypass Voltage Terminal. First insert the earth wire through the earth lug and tighten it to the proper torque value (2.5 – 3 Nm). Then connect the wires to the block connections as shown below. Using a torque wrench, turn the screws clockwise until tightened to the proper torque value.

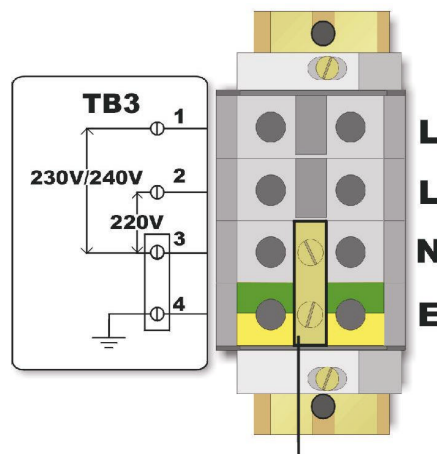


Output Wiring (TB3)

Without transformer



With transformer



Note the Neutral / Earth jumper on the terminal above.

Transformer Models

The *Nfinity* UPS contains an isolation transformer that generates a neutral conductor for the connected equipment. The UPS is a separately derived source and contains a neutral to earth bonding jumper. Remove this earth/neutral link when required by local electrical codes.

REPO Switch

Nfinity is equipped with a Remote Emergency Power Off (REPO) Switch. Only connect SELV circuits to REPO connector.

The user must supply a means of interfacing with the REPO circuit to allow disconnecting the UPS input feeder breaker to remove all sources of power to the UPS and connected equipment to comply with national and local wiring codes / regulations.

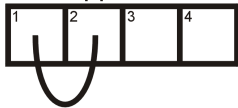
NOTE: *Nfinity* is shipped with REPO jumper installed. This jumper must be removed to allow UPS to start.

CAUTION: To maintain safety (SELV) barriers and electromagnetic compatibility signal cables should be segregated and run separately from power cables.

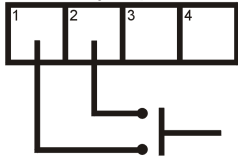
REPO Switch

Connection Diagram

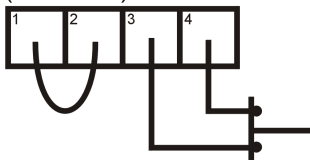
As Shipped



Normally Open Switch System



Normally Closed Switch System
(Fail-Safe)



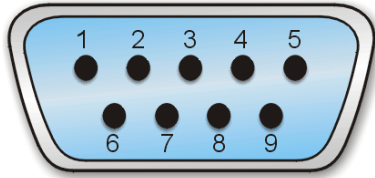
- 1 = 24V DC, 35 mA
- 2 = sense
- 3 = sense
- 4 = ground

If the installation does not require connection to a REPO system, the jumper must be removed.

Communication

COM Ports

Nfinity is able to communicate through multiple communication ports simultaneously. Only use Liebert provided communication cards. Only connect SELV circuits when connecting to any communication port.



Pin Assignment



COM 1 – Relay Contacts

Relay contacts are available through a DB-9F communications connector. Contact closure provides the following:

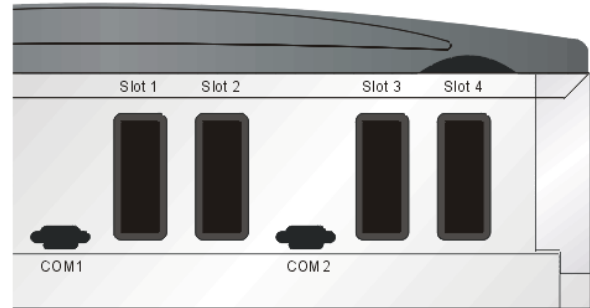
Pin	Assignment
1	Low Battery (normally open)
4	UPS shutdown in battery mode (5-12 V DC for 1.5 sec)
5	Common
7	Low Battery (common)
8	On Battery (common)
9	On Battery (normally open)

The contacts are rated 48V DC, 1 Amp maximum and are compatible with the SiteNet MultiLink software.

COM 2 – Serial

Nfinity is able to communicate via Liebert proprietary protocol. The pin-out configuration of the DB-9 connector is:

Pin	Assignment
2	Transmit Data
3	Receive Data
5	Common



Intellislot™ Ports

The following communication cards may be used with *Nfinity*:

Intellislot™ SNMP cards – allows the *Nfinity* communicate intelligently with your Ethernet network. The SNMP card must be installed in port 1; any additional cards can be added in consecutive ports.

Intellislot™ MultiPort4 cards– allows up to four client computer systems to simultaneously monitor the status of *Nfinity*.

Intellislot™ Relay Contacts cards – provides contact closures for remote monitoring of alarm conditions; On Battery, On Bypass, Low Battery, Summary Alarm, UPS Fault and On UPS signals. It will integrate with AS400 computers (additional cable required) and other monitoring systems.

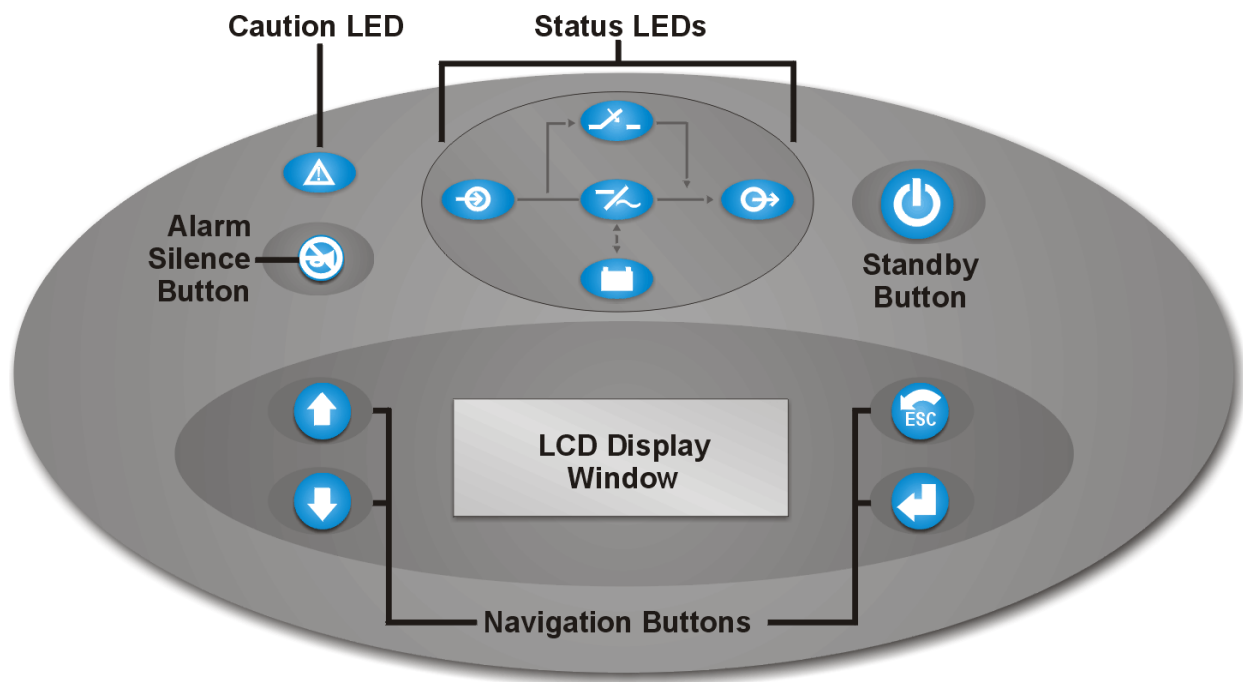
Operating Instructions

Controls and Indicators

Operating Procedures

Main Menu

Controls and Indicators



Display Controls

The User Interface Module informs the user of the status of the UPS, and lets him configure the UPS to his own needs or preferences.

It consists of a series of Status LED's, a 4 line by 20 character LCD display window, and buttons for navigation (as displayed above).

Buttons

Refer to the legend below in order to properly navigate the *Nfinity* User Interface.

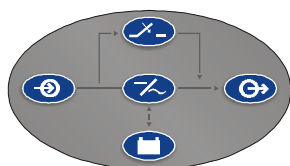
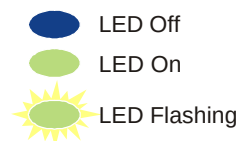
- Up** — Navigates cursor on display menus
- Down** — Navigates cursor on display menus
- Escape** - Returns to previous display screen
- Enter** - Selects displayed information
- Standby**- Enables / Disables output power
- Alarm Silence** - Mutes the audible alarm

LEDs

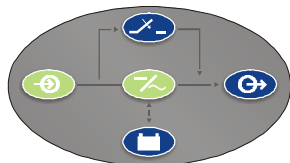
Refer to the legend below to indicate occurrence when an LED is lit.

- Caution**
Solid- A UPS fault condition has occurred.
Flashing- A Warning has occurred. Consult event log.
- AC Input** - AC utility is available
- On Bypass** - The Bypass is supplying the power
- Inverter On** - The Inverter is supplying the power
- On Battery** - Battery is supplying power to the inverter
- AC Output** - Power is available to supply the load

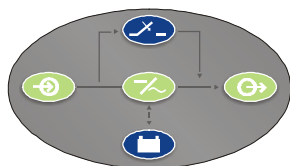
Status LED Modes



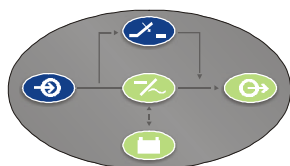
UPS is Off or Initializing



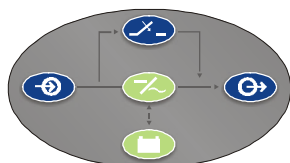
UPS On, Utility Good and Output Off



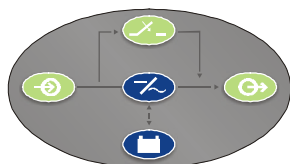
UPS On, Utility Good and Output On
(Normal Operation)



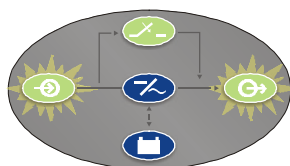
UPS On, Utility Bad and Output On
(On Battery Operation)



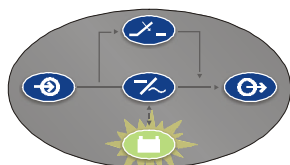
UPS On, Utility Bad, and Output Off



UPS in Bypass Operation
(Manual or Automatic)



UPS in Manual Bypass Operation with
Utility out of Bypass Operation Range

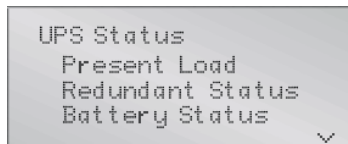


Shutdown Due to End of Discharge

Navigating the Menu

In order to review or change any settings on the UPS, it must be navigated using the buttons seen on the previous page. Because some menus contain more than four rows of information, you may see an arrow on the display pointing up or down (as shown below) – indicating to scroll using the **↑** or **↓** buttons.

If you are scrolling through any of the main menus, items will scroll one line at a time with the menu heading on the top line:



Pressing **↓** reveals:



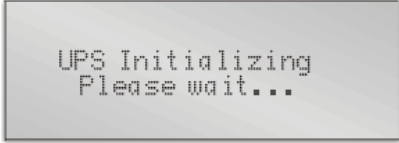
Note the arrows on the screen indicate that the user can scroll up or down to reveal more information.

Operating Procedures

Start-up and Initialization

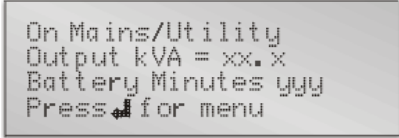
Follow these steps in order to start up the UPS.

1. Ensure the manual bypass switch is in UPS position. Close Input Circuit Breaker (CB1) and close the Control Enable Switch (SW2). You should see the following on the LCD display window:



UPS Initializing
Please wait...

2. Press  button.



On Mains/Utility
Output kVA = xx.x
Battery Minutes yyy
Press  for menu

3. Press  to access the main menu.

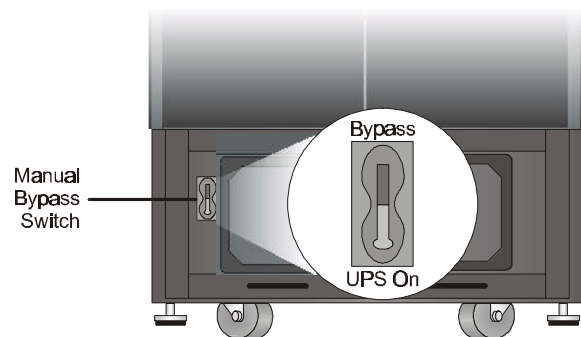
Shutting down the UPS

Use the following procedure to power down the UPS.

1. Press  to disable power from the connected equipment.
2. Verify request to disable the output by pressing .
3. Turn off the Enable Switch (SW2). Open the Input Circuit Breaker (CB1).

Manual Transfer to Bypass

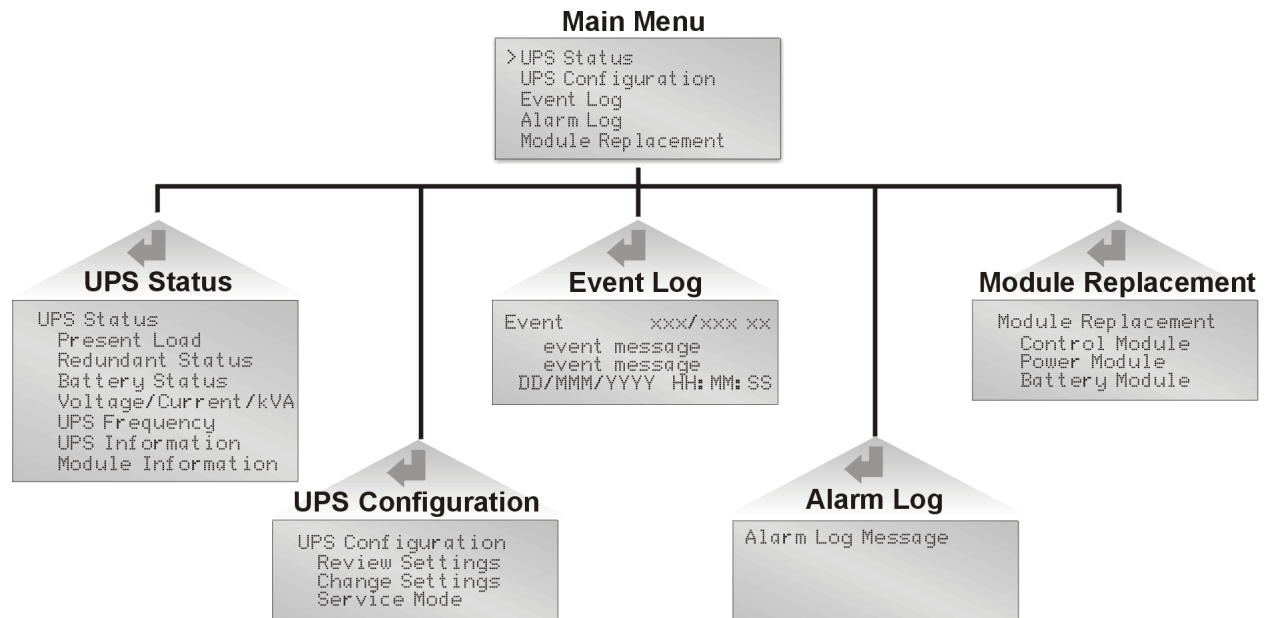
In the event of a UPS overload or failure, the UPS will transfer to bypass via its automatic bypass switch. It is possible for the user to manually transfer the UPS to bypass by operating the manual bypass switch located behind the lowest front cover to the bypass position. To transfer the UPS from bypass to normal mode, simply operate the manual bypass switch back to the UPS position.



It should be noted that the load is not protected from utility interruptions when in bypass mode.

Main Menu

After initialization, the  button will take you to the main menu. From here you may check on the status of the UPS, review the event and alarm log, configure your UPS, and even receive instructions on replacing modules. The main menu is divided into five sub-menus as shown below:



Use the   buttons to select the desired menu item and press  to access the appropriate sub-menu.

UPS Status Screen

From the main menu the user may select UPS Status and press . Once at the UPS Status Screen, the user may access any information on the present condition of the UPS. Note the chart below when reviewing the UPS. Any underlined text indicates measured parameters.

Main Menu

```
>UPS Status
UPS Configuration
Event Log
Alarm Log
Module Replacement
```

UPS Status

```
UPS Status
Present Load
Redundant Status
Battery Status
Volts / Amps / kVA
UPS Frequency
UPS Information
Module Information
```

Present Load

```
On Mains/Utility
Output kVA = xx.x
Output kW = xx.x
Output pf = xx.x
```

Redundant Status

```
Redundant Status
PMs Installed xx
PM: N+1 redundant
SC: redundant
```

Battery Status

```
Battery Status
Voltage VDC xxx
Capacity % xxx
Status: charging
BMs Installed xx
Ext batt present No
Discharge count: xxxx
Batt Usage: xxxx.x Hr
```

Volts/Amps/kVA

Input	Output
<u>xxx</u> VAC	<u>xxx</u> VAC
<u>xxx</u> A	<u>xxx</u> A
<u>xx.x</u> kVA	<u>xx.x</u> kVA

UPS Frequency

```
UPS Frequency
Input: Hz xx.x
Output: Hz xx.x
```

UPS Information

```
UPS Information
UPS ID: xxxxxxxxxxxx
xxxxxxxxxxxxxxxx
```

Module Information

```
Main Control
S/N: xxxxxxxxxxxxxxxx
FW ver: xx.xx

Redundant Control
S/N: xxxxxxxxxxxxxxxx
FW ver: xx.xx

User Interface
S/N: xxxxxxxxxxxxxxxx
FW ver: xx.xx

Power Module
S/N: xxxxxxxxxxxxxxxx
FW ver: xx.xx

Battery Module
S/N: xxxxxxxxxxxxxxxx
FW ver: xx.xx
```

UPS Configuration Screen

Review Settings

Follow this procedure to review your UPS configuration settings. Any underlined text indicates factory default values.

Main Menu

```
UPS Status  
>UPS Configuration  
Event Log  
Alarm Log  
Module Replacement
```



UPS Configuration

```
UPS Configuration  
>Review Settings  
Change Settings  
Service Mode
```



Review Settings

```
Voltage  
Battery  
Frequency  
Alarm  
Service Contact
```



Voltage Settings

```
Voltage Settings  
Input 230V
```

Battery Settings

```
Battery Settings  
Test intrvl 2 weeks  
on Wed at 06:00  
Low Batt Warn: 2 min
```

Frequency Settings

```
Frequency Hz: 50  
Sync Range Hz: +/- 5.0  
Slew Range Hz: 3.0
```

Alarm Settings

```
Alarm Settings  
Redundant Alarm:  
Enable/Disable  
Max Load: xx.x
```

Service Contact

```
Service Contact  
Liebert Corporation  
www.liebert.com
```

Change Configuration Settings

Change Settings Menu

Starting from the Main Menu, locate and press UPS Configuration. From the UPS Configuration screen, select the Change Settings option. Here one may configure *Nfinity* from a large variety of selections. Items indicated by an asterisk (*) or underlined are the selected settings.

Main Menu

```
UPS Status
>UPS Configuration
Event Log
Alarm Log
Module Replacement
```

UPS Configuration

```
UPS Configuration
Review Settings
>Change Settings
Service Mode
```

Change Settings

```
Input Voltage
Set Password
Auto Battery Test
Low Battery Warning
Auto Restart Mode
User Settings
Set Date/Time
Max Load Alarm Set
UPS Shutdown Delay
Redund Alarm Set
UPS Test
Service Contract
Remote Shutdown
External Battery
Frequency Settings
Frequency Sync Range
Frequency Slew Rate
Bypass Alarm Mode
```

Input Voltage: Select the required input voltage setting.

```
Input Voltage
230 LNE
*240 LNE
```

Transformer Models

```
Input Voltage
230 LNE
*240 LNE
220 LNE
```

Set Password: Set a Password to prevent unauthorized users from changing the configuration of the *Nfinity*. It can be up to 7 characters in length. Once set, the password will be required to change the configuration.

```
Set Password
xxxxxxx
```

WARNING: If the password is lost, then call Liebert Technical Support.

Display Language: Select appropriate language.

```
Display Language
>English
Deutsch
Italiano
Francais
Espanol
```

Auto Battery Test: Configure when and how often the *Nfinity*'s automatic battery test will run. This test is designed to ensure Battery system integrity and provide early warning of problems.

```
Auto Battery Test
Interval
Start Day
Start Time
```

Interval

```
Batt Test Interval
1 week
*2 weeks
3 weeks
4 weeks
6 weeks
Disabled
```

Start Day

```
Batt Test Start
WED
```

Start Time

```
Start Time
06:00
```

Low Battery Warning: Notifies user as to how much runtime is available. Can be set from 1 to 30 minutes.

```
Low Battery Warning
02 Minutes
```

Auto Restart: Automatically restarts once both delay parameters (battery capacity percentage and countdown timer) are met.

```
Auto Restart
Mode
Auto restart batt %
Auto restart delay
```

Auto Restart Mode

```
Auto Restart Mode
*Enable
Disable
```

Auto Restart Batt%

```
Auto Restart Batt %
0%
10%
*25%
40%
60%
80%
```

Auto Restart Delay

```
Auto Restart Delay
in 10 second
increments,
x0 sec
```

User Settings: From here one can enter the UPS ID or adjust the contrast of the user interface LCD.

```
User Settings
Set UPS ID
Screen Contrast
```

Set UPS ID

```
Set UPS ID
xxxxxxxxxxxxxxxx
xxxxxxxxxxxxxxxx
```

Screen Contrast

```
Screen Contrast
Press ↑ to increase
Press ↓ to decrease
```

Set Date/Time: Allows user to enable/disable DST (Daylight Savings Time), change the Day, Date and Time setting on *Nfinity*. When enabled, the time will automatically adjust to Daylight Savings.

```
Set Time/Date
DST Mode
Set Time/Date
```

DST Mode

```
DST Mode
*DST Enabled
DST Disabled
```

Set Date/Time

```
Set Date/Time
HH:MM:SS MM/DD/YYYY
```

Max Load Alarm Set: Allows an alarm to set when *Nfinity*'s load reaches a specific level.

```
Max Load Alarm Set
Mode
Set Threshold
```

Alarm Mode

```
Max Load Alarm Mode
*Enable
Disable
```

Set Threshold

```
Max Load Alarm Set
Threshold kVA = xx.x
```

UPS Shutdown Delay: Delays UPS shutdown for specified amount of time after receiving shutdown command via communications (serial or SNMP).

```
UPS Shutdown Delay
xxx seconds
```

Redundant Alarm Set: Sets Alarm to notify user when redundancy is no longer available.

```
Redundant Power
Alarm Set
*N+1
Disable
```

UPS Test: Allows user to test the Batteries, LED's, LCD, or Alarm.

```
UPS Test
LEDs
LCD
Battery
Alarm
```

Service Contact: Set a contact for the user to reach if problems occur.

```
Service Contact
Company
Contact Number
```



```
Company Name
Liebert Corporation
```

```
Contact Number
www.liebert.com
```

Remote Shutdown: Enables / Disables the Remote Communications Shutdown. If you are using SiteNet™ software, this parameter should be enabled in order for the UPS output to be turned off once the operating system has been shutdown.

```
Remote COMMS Shutdn
*Enable
Disable
```

External Battery: Sets total amp-hour for external batteries to provide a more accurate runtime remaining value on the LCD display and through communications.

```
External Battery
Enter total amp-hour
xxxx
```

Enter the following when using the External Battery Cabinets with Chargers.
(P/N: PB10SLF105WC120)

# Cabinets	AH Value
1	0091
2	0182
3	0273
4	0364
5	0455
6	0546

Frequency Settings: Sets the input and output operating frequency of the system.

```
Frequency Settings
*50 Hz
60 Hz
```

Frequency Sync Range: Sets the window to which the system synchronizes to the input supply.

```
Frequency Sync Range
0.5 Hz
1.0 Hz
2.0 Hz
3.0 Hz
4.0 Hz
*5.0 Hz
```

Frequency Slew Rate: Sets the rate of change of frequency through the sync range window.

```
Frequency Slew Rate
0.5 Hz
1.0 Hz
2.0 Hz
3.0 Hz
4.0 Hz
*5.0 Hz
```

Bypass Alarm Mode: Allows the user to enable/disable alarm, indicating that the bypass is not qualified.

```
Bypass Alarm Mode
*Enable
Disable
```

Event Log

One may open the Event Log from the main menu. By accessing the Event Log, the user may scroll through the *Nfinity's* past 255 occurrences in chronological order by pressing the   buttons.

Event Number	Reference Code	
Event # 031/255	04	
Power module removed		Description
S/N: 0012200001002G1		Event Detail or Serial Number
19 MAY 2000	16:54:27	
Date of Event	Time of Event	

The typical event log screen will display the event number and reference code on the first line. The purpose of this code is to assist factory trained service personnel in troubleshooting. Please make a note of the code number when contacting technical support. The second line contains the event description. The third line will have either more detail about the event, a serial number indicating as to which module the event occurred, or be left blank. The last line will show the date and time the event occurred.

Press  to go back to the main menu.

When event / alarm occurs, the User Interface LCD will display the last message regardless of the default screen. A list of possible event / alarm messages is displayed at right. If you encounter one of these or other messages and are unsure of the corrective action to take, please contact a qualified Liebert representative at the number listed in the back of this manual.

For more information regarding events, consult the troubleshooting section.

Alarm Log

When an alarm sounds, the User Interface LCD will display a general explanation as to what the alarm is indicating. To view these messages in chronological order, press the   buttons.

The first line of a typical alarm log screen will display the reason for the alarm occurrence. The second line will give a more specific detail of the occurrence (i.e.; module serial number).

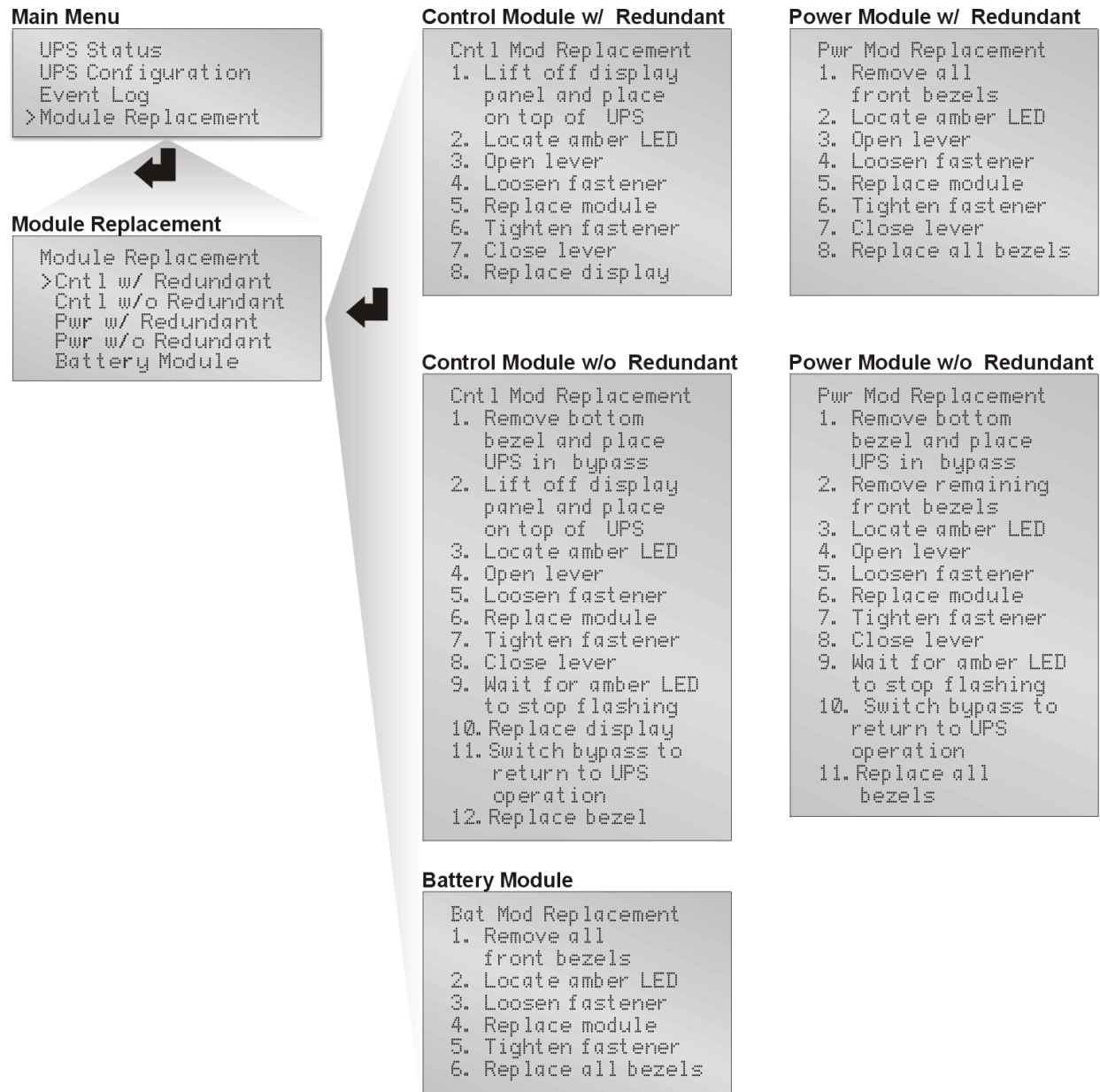
Press  to go back to the main menu.

Below is a list of possible events / alarms.

Occurrence	Event	Alarm
UPS Shutdown - End of Discharge	✓	✓
Output Off - Remote Communication	✓	
Number of battery modules changed	✓	
Battery Module Fail	✓	✓
Number of power modules changed	✓	
Power Module Fail	✓	✓
Last UPS Shutdown By Emergency Power Off	✓	
System Control Power Up	✓	
Power Module N+1 Redundancy Alarm	✓	✓
Output Off - Output Short Circuit	✓	✓
Low Battery Warning	✓	✓
UPS On Automatic Bypass	✓	✓
UPS switched from bypass to inverter	✓	
UPS Output Overload	✓	✓
UPS On Battery	✓	✓
Battery Module Redundancy Alarm	✓	✓
UPS switched from battery to utility	✓	
Bypass source not qualified	✓	✓
UPS Output On	✓	
Transformer Fan Failure	✓	✓
Transformer temperature warning	✓	✓
Transformer temperature alarm	✓	✓
Input Voltage Setting Error	✓	✓
Battery test started	✓	
Battery test stopped	✓	
Power Module Warning	✓	✓
Battery Module Warn	✓	✓
Main Control Warning	✓	✓
Main Control Failure	✓	✓
Redun. Control Warn	✓	✓
Redun. Control Fail	✓	✓
Load exceeds max load setting	✓	✓
Output Off - From Control Panel	✓	
Output Off - Due To Overload	✓	
Output Off - Due To Shutdown On Battery	✓	
Output Off - Due To Transformer Temp	✓	
Switch To Manual Bypass	✓	✓
Output Off - Due To Control Failure	✓	
Battery Module Not Ready	✓	✓
Power Module Not Ready	✓	✓
Load Exceeds battery module capacity	✓	✓
UPS switched from bypass to inverter	✓	
UPS on manual bypass	✓	
ESP output on	✓	
Rear rocker switched turned off	✓	
CAN Communications timeout	✓	✓
Turn SW2 off before removing	✓	✓
Load exceeds frame limit	✓	✓

Module Replacement

The user interface also supplies instructions for removing and replacing modules. From the main menu, access the module replacement screen and select the type of module. Refer to the screens below for reference:



For more details on module replacement, consult the troubleshooting section of this user manual.

Troubleshooting

Alarm Messages
Module LED Indication
Module Replacement

Alarm Messages

In the event of an alarm, the User Interface LCD will display the last message regardless of the default screen. A list of possible alarm messages is displayed below. If you encounter one of these or other alarm messages and are unsure of the corrective action to take, please contact a qualified Liebert representative at the number listed in the back of this manual.

Alarm Message	Cause	Action
Power Module not ready	Power Module is not properly installed	Ensure lever is in the locked position
Control Module not ready	Control Module is not properly installed	Ensure lever is in the locked position
Battery Module not ready	Battery Module is not properly installed	Ensure module is fully inserted and fastener is secured.
Load exceeds battery capacity	Battery Modules are overloaded	Add extra Battery Modules or decrease load
Battery Module Failure	Battery Module is no longer working properly.	Refer to Module LED indication section for corrective action.
Power Module Failure	A Power Module is no longer working properly.	Refer to Module LED indication section for corrective action.
General UPS Failure	The UPS is operating on bypass.	Contact qualified assistance.
Battery Test Failed	Unit has detected a Battery Module problem.	Verify the battery status via the display and perform self-battery test.
Redundant Power Alarm	The UPS is no longer redundant.	Replace faulty module to regain redundancy.
Maximum Load Alarm	Maximum load has been exceeded.	Insert additional modules to increase load capacity or reduce current load.
System Control Module Failure	System Control Module no longer working properly.	Replace faulty module.
On Battery	Load is currently being supplied from UPS.	Wait for input mains to return.
Low Battery	Battery power is low.	Allow batteries time to recharge.
UPS on Bypass (auto)	UPS switched to auto bypass.	Alarm screen should indicate reason for auto bypass.
UPS on Bypass (manual)	User switched UPS to manual bypass.	When ready, switch back to UPS.
Transformer fan failure	The transformer cooling fans are no longer working properly.	Contact qualified assistance.
UPS CanBus Failure	The internal communications are not working properly.	Contact qualified assistance.
UPS Shutdown Imminent	The UPS is about to shut down	Check for faulty modules, output overloads, or contact qualified assistance.
Wrong Voltage	The input voltage configuration and bypass jumper settings DO NOT MATCH.	Check to make sure the bypass voltage matches the input voltage and ensure the input voltage configuration matches the bypass jumper setting.

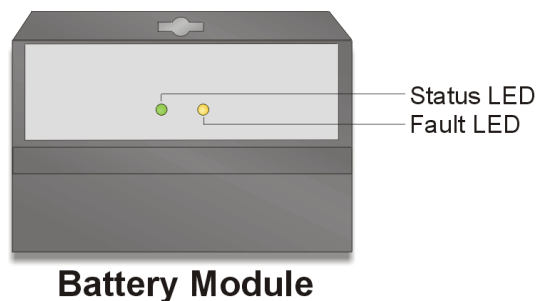
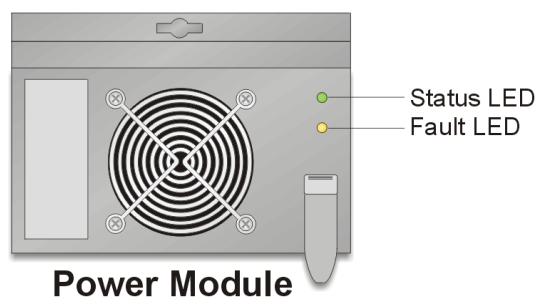
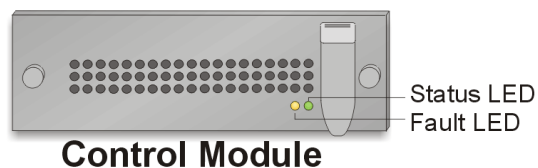
Module LED Indication

On every Battery, Power or Control Module are two LEDs to help inform the user of the module status. Refer to the chart below:

Status LED (Green)	Fault LED (Amber)	Module Status
OFF	OFF	Module not inserted into frame. System is OFF.
OFF	ON	Module is initializing (max 30 seconds*).
FLASHING	OFF	Normal Operation
FLASHING	FLASHING	Module is in start-up qualification mode, or module warning. **
FLASHING	ON	Module failed, is off-line and module control is functioning.
OFF	FLASHING	Abnormal operation, re-insert module. If this persists, contact qualified assistance.
ON	OFF	
ON	ON	
ON	FLASHING	

* If this persists for more than 10 seconds, check to verify the lever is in the down position, otherwise the module is faulty.

** If both Green and Amber LEDs are flashing for more than 30 seconds, then re-insert module.

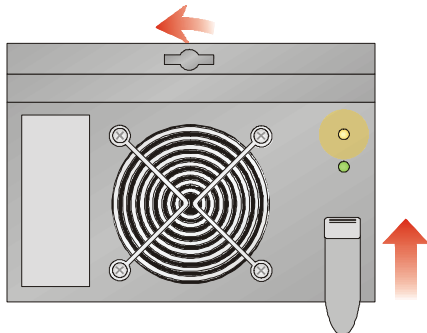


Module Replacement

Follow the instructions below when replacing a control, battery, or power module, or when adding modules to the system. To order additional modules, contact your Liebert representative.

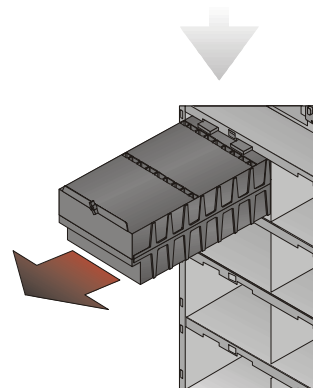
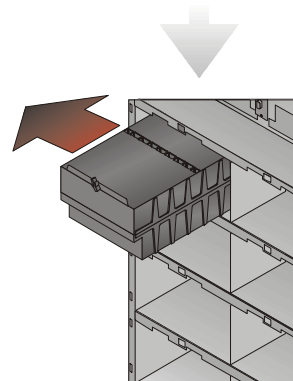
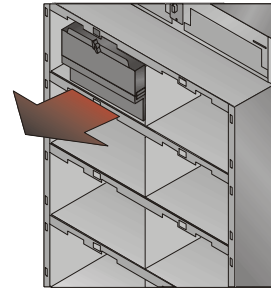
Removing Modules

1. Remove bezel cover of appropriate module. When replacing a Power or Battery Module, verify the faulty module by confirming the amber LED is lit.
2. If removing a Control or Power Module with no redundant modules, switch UPS to manual bypass. Switch SW2 off (0) in order to minimize risk of damage to modules.
3. Pull out and lift the lever if replacing a Control or Power Module, then turn fastener counter-clockwise until it is loosened.



4. Start to pull out module. About 2/3 out it will stop. Slide module away from the center of the UPS. **CAUTION:** Battery Modules are heavy (30 kg). Make sure to use two people when removing a Battery Module. Continue to pull until module is removed. (Seen at right)
5. Dispose of module in an environmentally responsible way that complies with local codes / regulations or return to Liebert for proper disposal.

Note: Battery Modules may contain shipping screws. These screws may be removed and discarded.

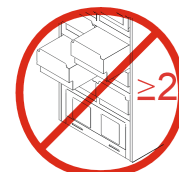
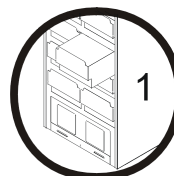


WARNING



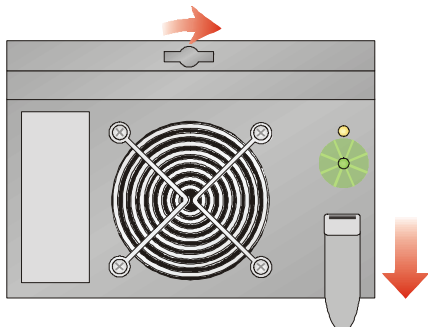
POTENTIAL TIP HAZARD

Install all modules starting from bottom to top bays. For module removal, start from top to bottom bays. Do Not remove more than one module at a time. Failure to do so may cause unit to tip over and cause serious injury.



Replacing Modules

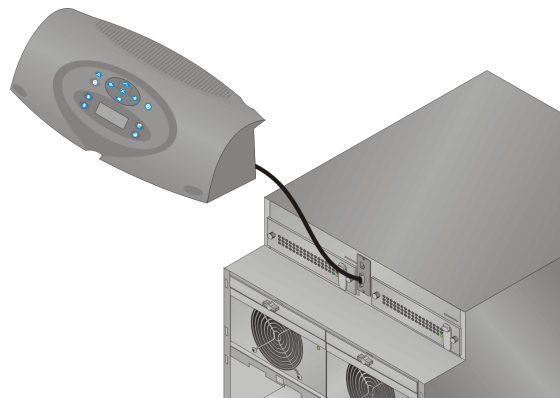
1. Lift module to appropriate bay, resting end of module on bay shelf. Use caution not to rest the module on the lower bezel cover.
2. Push module into bay. Once half way in, slide module sideways toward the center of the UPS. Continue pushing module until fully inserted.



3. Press and turn fastener clockwise until locked. If replacing a Control or Power Module, press lever down.
4. Wait about 15 seconds as the module performs a start-up test and synchronizes with the other modules. Both the amber and green LEDs should be flashing. A green flashing LED will then confirm the module is properly connected.
5. If UPS was placed in bypass manually, transfer back to UPS operation.
6. Replace bezels.

Replacing the User Interface

1. Lift off user interface and set it on top of the UPS frame.
2. The attached cable will be connected to an Intellislot card, found in a port between the control modules.



3. Disconnect the cable from the Intellislot card.
4. Plug the new user interface cable into the Intellislot card.
5. Set replacement User Interface into proper position.

Maintenance

Proper Care
Scheduled Maintenance
Replacing Fan Filters

Maintenance

Proper Care

Keeping your Liebert *Nfinity* UPS operating properly is imperative to optimal performance and life of the unit. It is recommended that a certified technician perform preventive and corrective maintenance. Liebert Global Services (LGS) is dedicated to ensuring the highest level of performance and unmatched support for your *Nfinity* UPS. Contact a LGS representative for services to guarantee maximum reliability and system availability.

Scheduled Maintenance

It is recommended the following maintenance is performed at least monthly:

- Clean unit
- Clean / replace filters
- Verify proper airflow

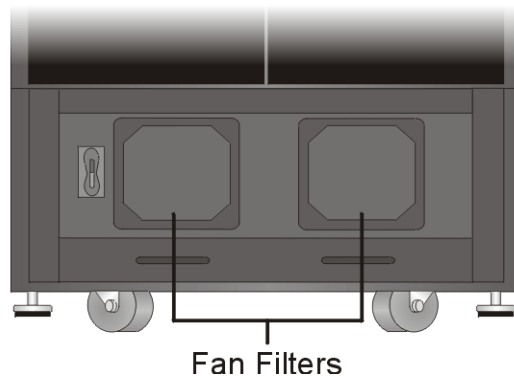
It is recommended the following maintenance is performed annually:

- Verify all power modules are operating properly.
- Verify all battery modules are operating properly.
- Verify redundancy (if applicable).

Replacing Fan Filters

Transformer models only

Nfinity's intake fans contain filters that will need to be replaced / cleaned periodically, depending on the surrounding environment. Check by removing the bottom bezel and noting the condition of the two filters. If filters are dirty, replace them by removing the plastic cover over the filter frame and inserting a new filter in its place. Use caution when replacing filters when fans are running.



The fan filters are washable and can be reused. To wash filters, place them under a running faucet (with the dirt side down) to remove dirt and dust. Blot dry with a towel and allow air-drying before reusing.

Reference

Specifications
Battery Run Times
Warranty
Technical Support

Specifications

General & Environmental		Units	Configuration			
Unit Rating		kVA	4	8	12	16
		kW	2.8	5.6	8.4	11.2
Conducted and Radiated EMC Levels		EN 50091-2 Class A				
Compliant Safety Standards		EN50091-1-1, CE, Low Voltage Directive				
Compliant Immunity Standards		EN61000 4-2,3,4,5,6				
Mechanical		Units	8 Bay		12 Bay	
Dimensions:	Width	mm	508.0		508.0	
	Depth		711.2		711.2	
	Height		1016.0		1346.2	
Environmental		Units				
Operating Temperature (max)		C	0° - 40°			
Relative Humidity		%	0-95% non-condensing			
Maximum operating altitude		M	3000			
Nominal heat dissipation		W	311	622	933	1244
Acoustic noise level		dBA	<62 @ 1 metre			
Input Data		Units				
Nominal input voltage		VAC	220 / 230 / 240			
Power factor		Cos Ø	>.98			
Input frequency (nominal)		Hz	50			
Input frequency range		Hz	40-70			
Battery Module		Units				
Number of lead acid batteries			10			
Number of battery cells			60			
Battery capacity		A/hr	9			
Autonomy time (full load)		minutes	7 (With an equal number of Battery & Power Modules, in a non-redundant configuration)			
Maximum charge current (full load)		A	3			
Nominal Voltage		VDC	120			
Recharge Time		Hrs	3-5 (to 90% capacity)			
Output Data		Units				
Output voltage		VAC	220 / 230 / 240			
Voltage regulation		%	±3			
Voltage stability (100% step load)		%	±7			
Recovery time		msec	96			
Voltage distortion:		%	<3 THD, linear load			
			<7 THD, non-linear load			
Output frequency		Hz	50			
Efficiency at 100% load		%	91			
Efficiency at 100% load (transformer models)		%	89			
Output overload capability		%	100 - 110% for 10 min			
			111-150% for 8 sec			
			151 – 200% for .25 sec.			

Battery Run Times

8 Bay Frame Internal (minutes)

		Quantity of Battery Modules							Quantity of External Battery Cabinets with Charger					
Load VA	Load Watts	1	2	3	4	5	6	7	1	2	3	4	5	6
12,000	8,400	-	-	7	11	15	-	-	36	90	157	226	298	373
11,500	8,050	-	-	7	12	16	-	-	38	95	166	239	314	392
11,000	7,700	-	-	8	12	17	-	-	40	101	176	252	332	413
10,500	7,350	-	-	9	13	18	-	-	43	109	186	267	352	435
10,000	7,000	-	-	9	14	19	-	-	46	118	198	283	396	459
9,500	6,650	-	-	10	15	20	-	-	49	126	211	302	396	486
9,000	6,300	-	-	11	16	21	-	-	53	135	226	323	422	517
8,500	5,950	-	-	12	18	23	-	-	57	146	243	347	449	551
8,000	5,600	-	7	13	19	25	30	-	62	157	262	373	480	589
7,500	5,250	-	8	14	21	27	32	-	67	171	283	402	517	630
7,000	4,900	-	9	15	22	29	34	-	73	186	309	435	558	678
6,500	4,550	-	10	17	25	31	38	-	81	205	339	473	605	734
6,000	4,200	-	11	19	27	34	41	-	90	226	373	517	659	798
5,500	3,850	-	13	21	30	38	45	-	101	252	413	569	722	875
5,000	3,500	-	14	23	33	42	49	-	118	283	459	630	798	970
4,500	3,150	-	16	26	37	46	55	-	135	323	516	704	891	1088
4,000	2,800	7	19	30	42	52	62	75	157	374	590	799	1,016	1,244
3,500	2,450	8	23	35	48	59	69	86	187	436	679	920	1,177	1,450
3,000	2,100	11	26	43	56	68	79	99	226	517	798	1,090	1,403	1,731
2,500	1,750	14	34	50	67	81	93	110	283	630	970	1,337	1,729	2,133
2,000	1,400	18	42	61	82	98	110	140	372	797	1,240	1,727	2,233	2,759
1,500	1,050	26	57	80	100	120	130	170	515	1085	1,723	2,400	3,118	>3500
1,000	700	40	82	110	140	160	170	230	802	1,739	2,777	>3500	>3500	>3500
900	630	45	90	120	150	170	190	240	893	1,958	3,135	>3500	>3500	>3500
800	560	51	100	130	160	190	200	260	1,013	2,233	>3500	>3500	>3500	>3500
700	490	58	110	140	180	200	220	280	1,168	2,593	>3500	>3500	>3500	>3500
600	420	66	120	160	200	220	240	310	1,416	3,159	>3500	>3500	>3500	>3500
500	350	77	140	180	220	240	260	340	1,739	>3500	>3500	>3500	>3500	>3500

Note: Back-up times are in minutes and are based upon resistive loading at an ambient of 25°C.

Battery Run Times

12 Bay Frame
Internal (minutes)

Load VA	Load Watts	Quantity of Battery Modules											Quantity of External Battery Cabinets with Charger					
		1	2	3	4	5	6	7	8	9	10	11	1	2	3	4	5	6
16,000	11,200	-	-	-	7	10	12	16	19	-	-	-	24	62	106	157	209	262
15,500	10,850	-	-	-	7	10	13	17	20	-	-	-	25	64	112	164	217	272
15,000	10,500	-	-	-	8	11	14	18	20	-	-	-	27	67	118	171	226	284
14,500	10,150	-	-	-	8	11	14	19	21	-	-	-	28	70	124	178	236	296
14,000	9,800	-	-	-	8	12	15	19	22	-	-	-	29	73	129	186	246	309
13,500	9,450	-	-	-	9	13	16	20	23	-	-	-	31	77	135	195	258	323
13,000	9,100	-	-	-	9	13	17	21	25	-	-	-	32	81	142	205	270	338
12,500	8,750	-	-	-	10	14	17	23	26	-	-	-	34	85	149	215	283	355
12,000	8,400	-	-	7	11	15	18	24	27	29	-	-	36	90	157	226	298	373
11,500	8,050	-	-	7	12	16	19	25	28	31	-	-	38	95	166	239	314	392
11,000	7,700	-	-	8	12	17	21	26	30	33	-	-	40	101	176	252	332	413
10,500	7,350	-	-	9	13	18	22	28	32	35	-	-	43	109	186	267	352	435
10,000	7,000	-	-	9	14	19	24	29	34	37	-	-	46	118	198	283	396	459
9,500	6,650	-	-	10	15	20	25	31	36	39	-	-	49	126	211	302	396	486
9,000	6,300	-	-	11	16	21	26	33	38	41	-	-	53	135	226	323	422	517
8,500	5,950	-	-	12	18	23	30	36	40	44	-	-	57	146	243	347	449	551
8,000	5,600	-	7	13	19	25	30	38	43	47	54	-	62	157	262	373	480	589
7,500	5,250	-	8	14	21	27	32	41	46	50	58	-	67	171	283	402	517	630
7,000	4,900	-	9	15	22	29	34	44	49	54	62	-	73	186	309	435	558	678
6,500	4,550	-	10	17	25	31	38	47	53	58	68	-	81	205	339	473	605	734
6,000	4,200	-	11	19	27	34	41	50	58	63	73	-	90	226	373	517	659	798
5,500	3,850	-	13	21	30	38	45	55	67	69	80	-	101	252	413	569	722	875
5,000	3,500	-	14	23	33	42	49	61	74	81	89	-	118	283	459	630	798	970
4,500	3,150	-	16	26	37	46	55	67	82	90	104	-	135	323	516	704	891	1088
4,000	2,800	7	19	30	42	52	62	75	92	100	110	120	157	374	590	799	1,016	1,244
3,500	2,450	8	23	35	48	59	69	86	100	110	130	140	187	436	679	920	1,177	1,450
3,000	2,100	11	26	43	56	68	79	99	120	130	150	170	226	517	798	1,090	1,403	1,731
2,500	1,750	14	34	50	67	81	93	110	140	150	180	200	283	630	970	1,337	1,729	2,133
2,000	1,400	18	42	61	82	98	110	140	170	190	220	250	372	797	1,240	1,727	2,233	2,759
1,500	1,050	26	57	80	100	120	130	170	220	240	290	330	515	1085	1,723	2,400	3,118	>3500
1,000	700	40	82	110	140	160	170	230	290	340	410	470	802	1,739	2,777	>3500	>3500	>3500
900	630	45	90	120	150	170	190	240	310	360	450	520	893	1,958	3,135	>3500	>3500	>3500
800	560	51	100	130	160	190	200	260	340	400	490	580	1,013	2,233	>3500	>3500	>3500	>3500
700	490	58	110	140	180	200	220	280	370	440	550	650	1,168	2,593	>3500	>3500	>3500	>3500
600	420	66	120	160	200	220	240	310	410	490	610	730	1,416	3,159	>3500	>3500	>3500	>3500
500	350	77	140	180	220	240	260	340	470	540	690	850	1,739	>3500	>3500	>3500	>3500	>3500

Note: Back-up times are in minutes and are based upon resistive loading at an ambient of 25°C.

Warranty

LIMITED WARRANTY

Liebert Corporation extends the following LIMITED WARRANTY to the purchaser and to its customer (collectively referred to as the "Purchaser"): the enclosed Uninterruptible Power System (UPS) and components are free from defects in materials and workmanship under normal use, service, and maintenance FOR A PERIOD OF TWO YEARS FROM THE DATE OF ORIGINAL PURCHASE from Liebert or the Liebert dealer or retailer. THE FOREGOING WARRANTY IS THE ONLY WARRANTY GIVEN AND NO OTHER WARRANTY IS PROVIDED, EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. Certain aspects of disclaimers are not applicable to consumer products acquired by individuals and used for personal, family, or household purposes (as distinguished from industrial or other purposes). Local laws may not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you. This warranty gives you specific legal rights, and you may have other rights, which vary according to local law.

Certain repairs or services are the responsibility of the Purchaser and the Purchaser is expected to pay for them. This warranty does not extend either to products with removed or altered serial numbers or to any losses or damages due to act of God or source external to the product, misuse, accident, abuse, neglect, negligence, unauthorised modification, alteration, or repair, use beyond rated capacity, or improper installation, maintenance, application or use, including, without limitation, use in a manner contrary to the accompanying instructions or applicable codes. WARNING: Warranty is void if the battery is allowed to discharge below the minimum battery cut-off point. The battery must be recharged every four (4) to six (6) months when not in use.

If the UPS fails to conform to the above warranty within the two-year warranty period, Liebert will repair or replace the UPS, at Liebert's option. Repairs or replacements are warranted for the remainder of the original warranty period. Purchaser, to make a warranty claim, should call to obtain a Returned Goods Authorisation number and shipping instructions. Return transportation costs to Liebert are the responsibility of the Purchaser.

"LIFE SUPPORT" APPLICATIONS

Due to the diversity of applications and considerations to be applied in each case, Liebert does not recommend or knowingly sell its products for such use.

The responsibility for risk assessment and management in applications where the malfunction or failure of the UPS could be reasonably expected to give rise to a risk of human life shall be the sole responsibility of the purchaser. Liebert accepts no liability for consequential harm in such applications.



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4 to 16 kVA

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The Company Behind The Products

With over a million installations around the globe, Liebert is the world leader in computer protection systems. Since its founding in 1965, Liebert has developed a complete range of support and protection systems for sensitive electronics:

- Environmental systems: close-control air conditioning from 1.5 to 60 tons.
- Power conditioning and UPS with power ranges from 250 VA to more than 1000 kVA.
- Integrated systems that provide both environmental and power protection in a single, flexible package.
- Monitoring and control — on-site or remote — from systems of any size or location
- Service and support, through more than 100 service centers around the world, and a 24-hour Customer Response Center.

While every precaution has been taken to ensure accuracy and completeness of this literature, Liebert Corporation assumes no responsibility, and disclaims all liability for damages resulting from use of this information or for any errors or omissions.

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